IN THE SPECIFICATION

Please insert the following paragraph on page 1 after the title of the invention and before the "TECHNICAL FIELD":

--RELATED APPLICATION

This application is a national phase of PCT/JP2005/001006 filed on January 26, 2005, which claims priority from Japanese Application No. 2004-024375 and Japanese Application No. 2004-024376 both of which were filed on January 30, 2004, the disclosures of which Applications are incorporated by reference herein. The benefit of the filing and priority dates of the International and Japanese Applications is respectfully requested.--

The following paragraphs will replace all prior versions of them in the specification of the application.

1) On page 21, line 10, please amend as follows:

~~22: Shutter unit~~

2) On page 32, line 1, please amend the paragraph as follows:

[0077] FIG. 6A is a circuit diagram of the zoom linear sensor of the lens barrel in accordance with the embodiment of the present invention. Meanwhile, FIG. 6B is a graph showing an output of the zoom linear sensor of the lens barrel in accordance with the embodiment of the present invention. The zoom linear sensor 21 is a variable resister. In the zoom linear sensor 21, sliding the slider 21a on a magnetic resistive element which is not shown, under a condition of applying a predetermined voltage between a first terminal and a third terminal causes a change in the output value outputted from a ~~terminal 2~~ second terminal. As can be seen from FIG. 6B, a moving stroke of the slider 21a and the output of the second terminal have a relation of a linear function.

3) On page 36, line 17, please amend the paragraph as follows:

[0092] One end 17a of the cam groove 17 corresponds to a position of the wide angle end of the second lens unit L2. One end 18a of the cam groove 18 corresponds to a position of the wide angle end of the third lens unit L3. One end 19a of the cam groove 19 corresponds to a position of the wide angle end of the fourth lens unit L4.

4) On page 36, line 22, please amend the paragraph as follows:

[0093] The other end 17b of the cam groove 17 corresponds to a position of the zooming end of the second lens unit L2. The other end ~~18a~~ 18b of the cam groove 18 corresponds to a position of the zooming end of the third lens unit L3. The other end of the cam groove 19 corresponds to a position of the zooming end of the fourth lens unit L4.

5) On page 37, line 5, please amend the paragraph as follows:

[0094] Ranges of from the end 17a to the end 17b of the cam groove 17, from the end 18a to the end 18b of the cam groove 18, and from the end 18a to the end 18b of the cam groove 18 all correspond to a center angle of about 100 degrees in the outer peripheral surface of the cam cylinder ~~17~~ 7.

6) On page 37, line 25, please amend the paragraph as follows:

[0097] The cam cylinder 7 has a cam cylinder wheel pin 20. The cam cylinder wheel pin 20 is fixed with a screw to the outer peripheral surface of the cam cylinder 7 towards the direction perpendicular to the optical axis AX. The cam cylinder wheel pin 20 projects to an outer peripheral surface of the lens unit 2 from the opening 3a formed in the first lens ~~moving~~ fixing frame 3.

7) On page 44, line 12, please amend the paragraph as follows:

[0115] Incidentally, in the figures, reference numerals represented in parentheses correspond to the case of describing a structure of the aperture ring 40, so that these may be ignored in the description relevant to a structure of the focus ring 32. In addition, in FIG. 14A through FIG. 14C, symbol (1) is a schematic sectional view cut at a plane which passes through the center of

the focus mode switching button 37 and includes the optical axis AX. Meanwhile, in FIG. 14A through FIG. 14C, symbol (~~1~~ 2) is a schematic sectional view cut at a plane which passes through the center of the focus mode switching button 37 and is perpendicular to the optical axis AX (xy plane).

8) On page 49, line 5, please amend the paragraph as follows:

[0131] In FIG. 8 and FIG. 12A, the apertures are indicated on the outer peripheral surface of the aperture ring 40. The indication area of the ~~object distance~~ aperture is divided into two areas. In Fig. 12A, indicating portions of [2] to [11] correspond to a manual area. Meanwhile, in FIG. 12A, an indicating portion of [A] corresponds to an auto area.

9) On page 51, line 23, please amend the paragraph as follows:

[0137] It should be noted herein that a first stop position in the aperture ring 40 is a position corresponding to the character [11] in FIG. 12A, whereas a second stop position in the aperture ring 40 is a position corresponding to the character [A] in FIG. ~~12B~~ 12A.

10) On page 52, line 4, please amend the paragraph as follows:

[0138] In FIG. 14A, when the aperture ring 40 reaches the first stop position, a locking part 43a of the aperture mode switching button 43 will come into contact with the locking part 36a provided in the third ring fixing frame 36. As a result, unless the aperture mode switching button 43 is operated, a rotation of the aperture ring ~~32~~ 40 in the direction of K will be prevented.

11) On page 53, line 13, please amend the paragraph as follows:

[0142] The manual ring unit 45 is coupled with the lens unit 2 in a following manner. The inner peripheral surface of the third ring fixing frame ~~38~~ 36 is supported by the rib 3f provided in an outer periphery of the first lens unit fixing frame 3 of the lens unit 2. The rib 3e provided in the first lens unit fixing frame 3 and the positioning part 38b provided in the second ring fixing frame come into contact with each other, so that the manual ring unit 45 is restricted to move in the direction parallel to the optical axis AX (direction of the z-axis).

12) On page 60, lines 23 and 25, please amend the paragraph as follows:

[0163] The manual ring unit 45 is assembled in a following manner. First, the focus linear sensor 35 and the aperture linear sensor 41 are fixed to third ring frame 36 with a screw from the outer peripheral surface in a predetermined position. The focus ring 32 is inserted in the third ring fixing frame 36 from the object side (positive direction of the z-axis) in the direction parallel to the optical axis AX. Upon inserting the focus ring 32, the slider 35a of the focus linear sensor 35 is inserted along with a fluting 34a. The flutings 34a are formed in the inner peripheral surface of the focus ring 32 following to an end of the cam groove 34 in the direction parallel to the optical axis AX (direction of the z-axis). When the focus ring 32 is inserted in the third ring fixing frame 36, a sliding surface ~~32a~~ of the inner periphery of the focus ring 32, and the sliding surfaces 36c provided in the outer periphery of third ~~fixing~~ ring fixing frame 36 are slidingly fitted to each other, so that the focus ring 32 will become rotatable with respect to the center of the optical axis.

13) On page 61, lines 5 and 10, please amend the paragraph as follows:

[0164] After inserting the focus ring 32, the second ring fixing frame 38 is fixed to the third ring fixing frame 36 with a screw from the object side (positive direction of the z-axis) parallel to the optical axis AX. As a result of being fixed, the focus ring 32 is restricted to move in the direction parallel to the optical axis AX (direction of the z-axis) by the end face 36d of the third ~~fixing~~ ring fixing frame 36, and the end face 38c of the second fixing ring. Next, the aperture ring 40 is inserted in the third ring fixing frame 36 from the image side (negative direction of the z-axis) parallel to the optical axis AX. Upon inserting the aperture ring 40, the slider 41a of the aperture linear sensor 41 is inserted along with a fluting 42a. The flutings 42a are formed in the inner peripheral surface of the aperture ring 40 following to an end of the cam groove 42 in the direction parallel to the optical axis AX (direction of the z-axis). When the aperture ring 40 is inserted in the third ring fixing frame 36, a sliding surface 40a of the inner periphery of the aperture ring 40, and the sliding surfaces 36c provided in the outer periphery of third fixing ring 36 are slidingly fitted to each other, so that the aperture ring 40 will become rotatable with respect to the center of the optical axis.

14) On page 63, line 14, please amend the paragraph as follows:

[0167] Next, the assembled manual ring unit 45 is attached to the lens unit 2 (STEP3). The assembled manual ring unit 45 is inserted in the lens unit 2 from the image side (negative direction of the z-axis) in the direction parallel to the optical axis AX. At this time, it is inserted until the positioning part 38b formed in the second ring fixing frame 38 of the manual ring unit 45 comes into contact with the rib 3e provided in the first lens unit fixing frame 3. At this time, the inner periphery of the third ring fixing frame 36 is supported by a plurality of positioning ribs 3f provided in the outer periphery of the first lens unit fixing frame 3. Further, the fourth ring fixing frame 44 is inserted in the lens unit 2 from the image side (negative direction of the z-axis) in the direction parallel to the optical axis AX. The fourth ring fixing frame 44 is fixed to the master flange 5 with a screw from the image side (negative direction of the z-axis) in the direction parallel to the optical axis AX. At this time, an end face 36b on the image side (negative direction of the z-axis) in the direction parallel to the optical axis AX of third ring ~~frame~~ fixing frame 36 is in contact with an end face 44a on the object side (positive direction of the z-axis) in the direction parallel to the optical axis AX of the fourth ring fixing frame 44 (foregoing processes are included in STEP3).

15) On page 63, lines 22-24, please amend the paragraph as follows:

[0168] Finally, the filter mount 29 is attached to the lens unit 2 (STEP4). The filter mount 29 is attached to the lens unit 2 from the object side (positive direction of the z-axis) in the direction parallel to the optical axis AX. ~~The filter mount 29 is fixed to the lens unit 2 from the object side (positive direction of the z-axis) in the direction parallel to the optical axis AX.~~ The filter mount 29 is inserted until an end face 29c thereof comes into contact with the rib 3d provided in the first lens unit fixing frame 3. The filter mount 29 is attached to the first ring fixing frame 27 so as for the ribs 3d and 3e to be disposed therebetween. The filter mount 29 is fixed to the first ring fixing frame 27 with the screw 30. Next, the decoration ring 31 is fixed to the filter mount 29 with the double-faced adhesive tape. The screw 30 is hidden by attaching the decoration ring 31, As a result, external beauties of the digital camera are increased (foregoing processes are included in STEP4).

16) On page 67, line 16, please amend the paragraph as follows:

[0179] In the lens barrel 46 in accordance with the embodiment of the present invention, since the output of the aperture linear sensor 41 changes corresponding to the angle of rotation of the aperture ring 40, the rotating operation of the aperture ring ~~41~~ 40 serves two functions, namely, the function as the operating member for manually setting the aperture, and a function as a switch for switching the aperture mode. Thus, it is possible to provide the lens barrel excellent in operability for the user. Moreover, since it also serves as the switch, a reduction in parts can be achieved.

17) On page 70, line 7, please amend the paragraph as follows:

[0187] The image sensor 16 is a CCD (Charge Coupled Device). The image sensor 16 converts the optical image formed by the imaging optical system ~~TL~~ L of the lens unit 2 into the electrical image signal. The image sensor 16 is driven and controlled by a CCD drive controller 50. The image signal outputted by the image sensor 16 is processed in order by an analog signal processor 51, an A/D converter 52, the digital signal processor 53, a buffer memory 54, and an image compressor 56.

18) On page 81, lines 8 and 9, please amend the paragraph as follows:

[0218] The aperture controller 62 generates a driving signal for driving the aperture drive motor ~~22b~~ 22a based on the control signal from the microcomputer 49. The aperture drive motor ~~22b~~ 22a is driven based on the driving signal. The aperture blade is driven resulted from the drive of the aperture drive motor 22b.

19) On page 81, lines 13, 15, and 17, please amend the paragraph as follows:

[0219] The shutter controller 63 generates a driving signal for driving the shutter drive motor ~~22a~~ 22b based on the control signal from the microcomputer 49. The shutter drive motor ~~22a~~ 22b is driven based on the driving signal. The shutter blade is driven resulted from the drive of the shutter drive motor ~~22a~~ 22b.

20) On page 83, line 4, please amend the paragraph as follows:

[0225] The microcomputer 49 requests the aperture information detected from the angle of rotation of the aperture ring ~~44~~ 40 to the aperture controller 62. Based on the instruction from the microcomputer 49, the aperture controller 62 transmits the aperture information detected from the angle of rotation of the aperture ring 40 to the microcomputer 49. When the exposure setting mode is in the aperture priority shooting mode, the microcomputer 49 transmits the instruction to the digital signal processor 53. The digital signal processor 53 transmits the image signal to the microcomputer 49 at predetermined timings based on the received instruction.

21) On page 84, lines 17, 19, 21, 22, 23, and 25, please amend the paragraph as follows:

[0228] The aperture controller 62 generates the driving signal for driving the aperture drive motor ~~22b~~ 22a based on the control signal from the microcomputer 49. The aperture drive motor ~~22b~~ 22a is driven based on the driving signal. The aperture blade is driven resulted from the drive of the aperture drive motor ~~22b~~ 22a. The shutter controller 63 generates the driving signal for driving the shutter drive motor ~~22a~~ 22b based on the control signal from the microcomputer 49. The shutter drive motor ~~22a~~ 22b is driven based on the driving signal. The shutter blade is driven resulted from the drive of the shutter drive motor ~~22a~~ 22b.

22) On page 86, line 14, please amend the paragraph as follows:

(2c) driving means (focus motor ~~22b~~ 15) for driving the moving means based on the control signal,

23) On page 96, line 23, please amend the paragraph as follows:

[0256] When the linear sensor shown in FIG. 18 is replaced by the focus linear sensor ~~21~~ 35 of the embodiment, what is necessary is to provide the contact brush 70 in the inner periphery of the focus ring 32, and just to fix the conductive pattern 71 to the outer periphery of the third ring fixing frame 36. When the linear sensor shown in FIG. 18 is replaced by the aperture linear sensor 41 of the embodiment, what is necessary is to provide the contact brush 70 in the inner periphery of the aperture ring 40, and just to fix the conductive pattern 71 to the outer periphery of the third ring fixing frame 36. In addition, a rotary encoder for detecting the amount of

rotation may be used instead of the linear sensor.